



# STUDIES

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## AN ECOLOGIC STUDY OF CANCER IN COMMUNITIES NEAR PAPER MILLS

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by

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### ABSTRACT

There are 16 paper mills that operate in 12 North Carolina counties. This special study evaluates the association of paper mill emissions and the occurrence of selected cancers in these counties. Paper mills that use a bleaching process were determined to be ones that would most probably have effluent or emissions with dioxin contaminants. The cancers selected for study were liver, stomach, soft tissue sarcomas, and non-Hodgkin's lymphoma; these cancer sites were associated with paper mill employment or exposure to dioxins based on a review of the scientific literature.

Each of these cancers has high case fatality rates so that mortality data were considered a good estimate of cancer incidence. Mortality rates of the six counties with paper mills using bleaching processes were examined in detail for evidence of excess cancer occurrence of these specific types. Geographic analyses were performed to evaluate spatial patterns of residence for cancer cases.

The latter stages of the study focused on Craven and Haywood counties due to elevated cancer rates and trends in cause-specific cancer rates over the 1970-1990 interval. Proportionate mortality ratios were calculated to assess the patterns of cancer occurrence within the counties. Geographic evaluations were made for patterns that suggest hazardous exposures through the environment (e.g., air or water borne). Further, case history studies were made including assessments of occupational exposures and drinking water sources. An analysis of breast cancer incidence was added for Haywood County.

No specific association could be discerned between the cases of cancer for the selected types and emissions from paper mills.

